Canon Paleo Curriculum
Unit: The Nature of Science
Lesson Plan 5

Activity Name: Performing an Experiment

Supplies:
Worksheet -Performing an experiment

Preparation:
Copy worksheet for students

Concept:
Students test their understanding of the scientific method. They must discern between hypthothesis, problem, observation, conclusion, etc.

Activity:
Students complete worksheets on their own.
The class discusses answers

Conclusions:
There are gray areas when answering some the questions posed. There are also multiple answers for some of the questions. This should promote a lively discussion and a better understanding of the process of tesing a hypothesis. This activity is a good excercise for students before they perform their first experiment.

Time: 25-30 Minutes

Name _____

Class _____

Date _____

Performing an Experiment

Read the following statements and then answer the questions.

1. A scientist wants to find out why sea water freezes at a lower temperature than fresh water.

2. The scientist goes to the library and reads a number of articles about the physical properties of solutions.

3. The scientist also reads about the composition of sea water.

4. The scientist travels to a nearby beach,and observes the conditions there. The scientist notes the taste of the sea water and other factors such as waves, wind, air-pressure, temperature, and humidity.

5. After considering all this information, the scientist sits at a desk and writes, “My guess is that sea water freezes at a lower temperature than fresh water because sea water has salt in it.”

6. The scientist goes back to the laboratory and does the following:

    a. Fills each of two beakers with I liter of fresh water.
    b. Dissolves 35 grams of table salt in one of the beakers.
    c. Places both beakers in a refrigerator whose temperature is - 1degree C.
    d. Leaves the beakers in the refrigerator for 24 hours.

7. After 24 hours, the scientist examines both beakers and finds the fresh water to be frozen. The salt water is still liquid.

8. The scientist writes in a notebook, “It appears as if salt water freezes at a lower temperature than fresh water does.”

9. The scientist continues, “Therefore, I suggest that the reason sea water freezes at a lower temperature is that sea water contains dissolved salts while fresh water does not.”

Questions

A. Which statements contain *conclusions?* _____

B. Which statements refer to *research?* _____

C. Which statement contains a *hypothesis?*_____

D. Which statements contain *observations?* _____

E. Which statements describe an *experiment?* _____

F. Which statement supports the *hypothesis?* _____

G. In which statement is the *problem* defined? _____

H. Which statement contain *data*? _____

I. Which is the *variable* in the experiment?_____

J. What is the *control* in the experiment? _____

K. Which statement includes an *inference*? _____

KEY FOR TEACHERS

Name _____

Class _____

Date _____

Performing an Experiment

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Questions

A. Which statements contain *conclusions?* ____*8, 9*_____

B. Which statements refer to *research?* ____*2, 3*_____

C. Which statement contains a *hypothesis?*___*5*_____

D. Which statements contain *observations?* ___*4, 7*_____

E. Which statements describe an *experiment?* ___*6, 7*_____

F. Which statement supports the *hypothesis?* ____*7, 8*_____

G. In which statement is the *problem* defined? ____1_____

H. Which statement contain *data*? ____7_____

I. Which is the *variable* in the experiment?___SALT_____

J. What is the *control* in the experiment? ____FRESHWATER_____

K. Which statement includes an *inference*? _____5_____